

"Electrical Heater With Thermistor"

CLAIMS

What is claimed is:

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1. An electrical heater comprising:  
a substrate;  
first and second electrodes disposed on the substrate in spaced apart relation,  
a first adjacent portion of the first and second electrodes having corresponding interdigitated electrode portions protruding therefrom, and another adjacent portion of the first and second electrodes devoid of interdigitated electrode portions;  
a thermistor material electrically interconnecting the first and second electrodes,  
a summation of electrical paths along the first and second electrodes from corresponding electrical power application end portions thereof to adjacent portions of the first and second electrodes is substantially the same.
  2. The heater of Claim 1, the thermistor material comprises a positive temperature coefficient material
  3. The heater of Claim 2, the first and second electrodes each having opposite end portions located at a common termination zone on the substrate, one of the end portions of each electrode corresponds to the electrical power application end portion thereof.
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4. The heater of Claim 3, the substrate is a fabric coated with the positive temperature coefficient material and the first and second electrodes are disposed thereon.

5. The heater of Claim 1, a spacing between a first portion of the first and second electrodes is greater than a spacing between a second portion of the first and second electrodes.

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~~6. An electrical heater comprising:  
a substrate;  
first and second electrodes disposed on the substrate in spaced apart relation,  
the first and second electrodes each having opposite end portions located at a common termination zone on the substrate,  
adjacent portions of the first and second electrodes having interdigitated electrode portions protruding therefrom;  
a thermistor material electrically interconnecting the first and second electrodes.~~

7. The heater of Claim 6, a summation of electrical paths along the first and second electrodes from one of the corresponding end portions thereof to adjacent portions of the first and second electrodes is substantially the same.

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8. An electrical heater, comprising:  
a substrate;  
a plurality of first, second and third electrodes disposed on the substrate in spaced apart relation,  
the second electrode located between the first and third electrodes,  
the first, second and third electrodes each having opposite end portions located at a common termination zone of the substrate,  
a thermistor material electrically interconnecting the first, second and third electrodes.

9. The heater of Claim 8, the thermistor material comprises a positive temperature coefficient material.

10. The heater of Claim 8, a multi-pole, multi-position switch electrically coupled to the opposite end portions of the first, second and third electrodes.

11. The heater of Claim 8, a plurality of electrical terminals fastened to the substrate at the common termination zone, each of the opposite end portions of the first, second and third electrodes electrically coupled to a corresponding one of the plurality of electrical terminals.

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12. The heater of Claim 8, a summation of electrical paths along the first and third electrodes from one of the corresponding end portions thereof to adjacent portions of the first and third electrodes is substantially the same.

13. The heater of Claim 12, a summation of electrical paths along the first and second electrodes from one of the corresponding end portions thereof to adjacent portions of the first and second electrodes is substantially the same.

14. The heater of Claim 13, a summation of electrical paths along the second and third electrodes from one of the corresponding end portions thereof to adjacent portions of the second and third electrodes is substantially the same.

15. The heater of Claim 14, adjacent portions of the first, second and third electrodes are arranged in a generally serpentine pattern on the substrate.

16. The heater of Claim 8, the second electrode is wider than the first and third electrodes.

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17. The heater of Claim 8, adjacent portions of at least two of the first, second and third electrodes having interdigitated electrode portions protruding therefrom.

18. The heater of Claim 17, spacing between adjacent portions of at least two of the first, second and third electrodes varies.

~~19. The heater of Claim 8, interdigitated electrode portions protruding from adjacent portions of at least two of the first, second and third electrodes.~~

~~20. The heater of Claim 8, the substrate is a fabric coated with a positive temperature coefficient material, and the first, second and third electrodes are screen printed thereon.~~